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NOTE: The Resilience Section will return next month

Upcoming Issue in May 2011



What is AFN? Is it "A Fantastic Nebulae", "A Fan Natic"?? What is it and how or does it affect me?

Find out by reading next month OES newsletter, you may be surprise at what you learn.

2011 Upcoming Topics

AprilFact or Myths
Earthquakes

City of Santa Barbara

Get Ready Santa Barbara!

Stay informed in 2011

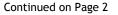
Fact or Myth: Earthquakes

Have you ever heard someone say, "This feels like earthquake weather" or "California will one day fall into the ocean" or maybe even, "Big earthquakes only happen early in the morning". Maybe these passages are new to you? However, those of us who have grown up in California, commonly known as "Earthquake Country", have heard these expressions many times. We may have even cited one or two. Since the beginning of time earthquakes have contributed to the make up of our planet. Santa Barbara's beautiful coastline and mountain range were created by great pushes on the earth surface over thousands of years. But what are earthquakes really, how do they happen, can they be predicted? These are only some of the questions asked. Some of us may have never been through a large earthquake. But those of us who have been in the middle of them, know the eerie feeling you get when the earth beneath your feet begins to move.

So lets see what the experts at the US Geographical Survey (USGS) have to say about our axioms above, the answer may or may not surprise you.

Is there such a thing as earthquake weather? USGS-In the 4th Century B.C., Aristotle proposed that earthquakes were caused by winds trapped in subterranean caves. Small tremors were thought to have been caused by air pushing on the cavern roofs, and large ones by the air breaking the surface. This theory lead to a belief in earthquake weather, that because a large amount of air was trapped underground, the weather would be hot and calm before an earthquake. A later theory stated that earthquakes occurred in calm, cloudy conditions, and were usually preceded by strong winds, fireballs, and meteors. There is no such thing as "earthquake weather". Statistically, there is approximately an equal distribution of earthquakes in cold weather, hot weather, rainy weather, etc. Very large low-pressure changes associated with major storm systems (typhoons, hurricanes, etc) are known to trigger episodes of fault slip (slow earthquakes) in the Earth's crust and may also play a role in triggering some damaging earthquakes. However, the numbers are small and are not statistically significant

Will California fall into the ocean? USGS—No. The San Andreas Fault System, which crosses California from the Salton Sea in the south to Cape Mendocino in the north, is the boundary between the Pacific Plate and North American Plate. The Pacific Plate is moving northwest with respect to the North American Plate at approximately 46 millimeters per year (the rate your fingernails grow). The strike-slip earthquakes on the San Andreas Fault are a result of this plate motion. The plates are moving horizontally past one another, so California is not going to fall into the ocean. However, Los Angeles and San Francisco will one day be adjacent to one another! In about a million years!!!!





Disaster Trivia-Earthquakes

Every month we will have a series of disaster related trivia questions. Check your disaster IQ, before you check the answers at the bottom.

- 1. Which is the worst place to be during an earthquake?
- a. In the open air
- b. Under a table
- C. In a green house
- d. In a doorway
- 2. Which US State is the least likely to have an earthquake?
- a. Washington
- b. Utah
- c. Alaska
- d. Colorado
- 3. The "Ring of Fire" includes which of the following locations?
- a. Mt. Pinatubo, Philippines
- b. Anchorage, Alaska
- c. San Francisco, CA
- d. All of the above
- 4. An earthquake measuring 3.5 on the Richter Scale is likely to produce what effect?
- People on the top floor of a building will feel it and probably no one else
- Windows and furniture will rattle
- c. Weak structures and walls will fall
- d. Shock waves will be visible on the ground

1.c 2.d 3.d 4.a

May
What is AFN?

June
Fact or Myth
Fire

How to survive the Summer

Public Health
Emergencies

Fact or Myth
Terrorism



Fact or Myth: Earthquakes

(cont)

Big earthquakes happen early in the morning? - USGS— **No.** Earthquakes are equally as likely to occur at any time of the day or month or year. The factors that vary between the time of the day, month, or year do not affect the forces in the earth that cause earthquakes.

So how are earthquakes recorded, measured and how is the magnitude determined. USGS says that earthquakes are recorded by a seismographic network. Each seismic station in the network measures the movement of the ground at the site. The slip of one block of rock over another in an earthquake releases energy that makes the ground vibrate. That vibration pushes the adjoining piece of ground

and causes it to vibrate, and thus the energy travels out from the earthquake in a wave.

There are many different ways to measure different aspects of an earthquake.

Magnitude is the most common measure of an earthquake's size. It is a measure of the size of the earthquake source and is the same number no matter where you are or what the shaking feels like.

The Richter scale measures the largest wiggle on the recording, but other magnitude scales measure different parts of the earthquake.

Intensity is a measure of the shaking and damage caused by the earthquake, and this value changes from location to location.

Surface Waves

Body Waves

Magnitude / Intensity Comparison

The following table gives intensities that are typically observed at locations near the epicenter of earthquakes of different magnitudes.

Magnitude	Typical Maximum Modified Mercalli Intensity	Abbreviated Modified Mercalli Intensity Scale I. Not felt except by a very few under especially favorable conditions.
1.0 - 3.0		$\ensuremath{\text{II}}.$ Felt only by a few persons, especially on upper floors of buildings.
3.0 - 3.9	' II - III	III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck.
4.0 - 4.9	IV - V	IV. Felt indoors by many, outdoors by few during the day. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
5.0 - 5.9	VI - VII	${\bf V}.$ Felt by nearly everyone. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
		VI. Felt by all. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
6.0 - 6.9	VII - IX	VII. Damage negligible in buildings of good design and construction;
7.0 and higher	VIII or higher	slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.

To learn more go to the USGS site at http://earthquake.usgs.gov/learn/topics/



1994 Northridge Earthquake

Disaster Facts

March 11, 2011 Japan Earthquake

2011 Tōhoku earthquake and tsunami (東日本大震

災,) was caused by a 9.0-magnitude undersea megathrust earthquake off the coast of Japan that occurred on Friday, March 11, 2011. Some facts include:

- On April 1, 2011, the Japanese government officially named the disaster the "Great Eastern Japan Earthquake".
- The earthquake triggered extremely destructive tsunami waves of up to 37.9 meters (124 ft) that struck Japan minutes after the quake, in some cases traveling up to 10 km (6 mi) inland, with smaller waves.
- Tsunami warnings were issued and evacuations ordered along Japan's Pacific coast and at least 20 other countries, including the entire Pacific coast of the Americas.
- The earthquake moved Honshu 2.4 m (7.9 ft) east and shifted the Earth on its axis by almost 10 cm (3.9 in).
- Over 125,000 buildings damaged or destroyed.
- Around 4.4 million households in northeastern Japan were left without electricity and 1.5 million without water.
- Many electrical generators were taken down, and at least three nuclear reactors suffered explosions due to hydrogen gas that had built up within their outer containment buildings after cooling system failure.

Remember, the further we get from the last earthquake, the closer we get to the next. ARE YOU PRE-PARED? ARE YOU READY SANTA BARBARA?

For more facts on Japan earthquake go to: http://earthquake-report.com/2011/03/29/japan-earthquake-report.com/2011/03/29/japan-earthquake-most-complete-summary-of-the-fire-and-police-damage-statistics/

City of Santa Barbara Office of Emergency Services



OES is on the web!

http://www.santabarbaraca.gov//OES

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Current City News

The County's Multi-Jurisdictional Hazard Mitigation Plan Revision Survey Santa Barbara City is updated its portion of the plan and needs your input!

Participate in the Santa Barbara County Multi-Jurisdictional Hazard Mitigation Plan update by completing the survey below. Your feedback on the identification of hazards in our area and your opinions regarding emergency preparation and priorities are very important to the completion of this planning process.

 $\underline{http://www.surveymonkey.com/s/SantaBarbaraCounty_LHMP2011_English}$

El Condado de Mitigación de Riesgos Múltiples jurisdiccionales Revisión del Plan de Estudio

http://www.surveymonkey.com/s/SantaBarbaraCounty_LHMP2011_Spanish

For more information contact the City's Office of Emergency Services.